

ANISHCHENKO, N. S.

Anishchenko, N. S. "The sanitary-hygienic characteristics of new residential section of the city of Leningrad." Min Health RSFSR. Leningrad Sanitary-Hygiene Medical Inst. Leningrad, 1956. (Dissertation for the Degree of Candidate in Medical Science)

So: Knizhnaya letopis', No. 27, 1956. Moscow. Pages 94-109; 111.

ANISHCHENKO, N.S., kand.meditsinskikh nauk

Permissible spaces between apartment houses in the Leningrad latitude.
Gig.i san. 24 no.12:12-17 D '59. (MIRA 13:4)

1. Iz kafedry kommunal'noy gigiyeny Leningradskogo sanitarno-gigiyenicheskogo meditsinskogo instituta.

(CITY PLANNING)

(CLIMATE)

ANISHCHENKO, N.S.

Hygienic evaluation of the positioning of hospital beds. Trudy
LSGMI no.68:86-92 '61. (MIRA 15:11)

1. Kafedra kommunal'noy gigiyeny Leningradskogo sanitarno-gigiyenicheskogo meditsinskogo instituta (zav. kafedroy - prof. A.I. Shtreys).

(LENINGRAD--HOSPITAL BEDS)

ANISHCHENKO, P. I., Eng.; LITVINENKO, V. I., Eng.

Production-line rapid construction of many-storied houses. *Biul. stroi. tekhn.*
9, no. 17, 1952.

SO: MLRA. December 1952.

3(7)

SOV/50-59-5-14/22

AUTHOR: Anishchenko, P. I.

TITLE: Saving Mercury (Za ekonomiyu rtuti)

PERIODICAL: Meteorologiya i gidrologiya, 1959, Nr 5, p 50 (USSR)

ABSTRACT: Mercury thermometers are used at all hydrometeorological stations. Many of them are broken every year. They are all written off and the mercury is thrown away. The author suggests here to collect this mercury and send it once a year to the local UGMS to be forwarded to the factories producing hydro-meteorological instruments.

Card 1/1

SOLOVEYCHIK, I.Ye.; ANISHCHENKO, P.M.; MASHAROVA, V.G., red.

[Read-out and its application in modern radio systems; brief review of studies published in foreign periodicals from 1947 to July 1958] Znakovaia indikatsiia i ee primeneniie v sovremennykh radioelektronnykh sistemakh; kratkii obzor rabot, opublikovannykh v zarubezhnoi pechati v period 1947 - iul' 1958 gg. Moskva, Izd-vo "Sovetskoe radio," 1959. 122 p.
(MIRA 12:8)

(Radio control)

Pavlovskiy, Yu.N.; BAZZHIN, A.P.; ANISHCHENKO, P.M.

Symposium on the Use of Analog and Digital Computer Techniques
in Aeronautics. Vest. AN SSSR 34 no. 2:101 F '64. (MIRA 17:5)

S/520/59/000/022/001/021
EO52/E414

16.4500

AUTHOR: Anishchenko, R.I.

TITLE: On the Integral Form of the Thomas-Fermi Equation

PERIODICAL: Akademiya nauk SSSR, Ural'skiy filial, Sverdlovsk.
Institut fiziki metallov. Trudy, No.22, 1959, pp.7-12

TEXT: In view of the recent interest in non-linear integral equations, the present author has investigated the possible reduction of the non-linear Thomas-Fermi differential equation to an integral equation of a standard form. The integral equation may be more convenient for setting up an approximate solution. R.Latter (Refs.1 and 2) has used the integral form of the Thomas-Fermi equation to obtain an approximate solution for a compressed atom with a spherically symmetric distribution of electrons around the nucleus. It is shown in the present paper that, subject to the appropriate boundary conditions, the Thomas-Fermi equation can be reduced to the non-linear equation

$$\psi(M) = \int_D K(M,N) f(\psi(N), N) d\tau_N \quad (1)$$

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On the Integral Form ...

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E032/E414

This equation has been investigated in some detail by N.S.Smirnov (Ref.3) and M.A.Krasnosel'skiy (Ref.4). The Thomas-Fermi equation for a finite region D of a three dimensional space is taken in the form

$$\Delta V(M) = aV^{3/2}(M) \quad (2)$$

subject to the condition

$$\lim_{M \rightarrow 0} [V(M)r(M,0)] = Ze \quad (3)$$

where $r(M,0)$ is the distance between the points M and 0 , 0 is the point at which the charge Ze is located, $a = 4\pi\sigma e$, $\sigma = 2^{3/2}/3\pi^2 e^{3/2} a_0^{3/2}$, and a_0 is the first Bohr radius for the hydrogen atom. The boundary conditions which are necessary for Eq.(2) and (3) to have a significant solution can be given in a variety of ways. The present author considers the following boundary conditions. The potential on the surface S

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S/520/59/000/022/001/021
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On the Integral Form ...

of the region D is zero, i.e.

$$V(M)|_S = 0 \quad (4)$$

and the derivative of this potential evaluated along the normal to S is also zero, i.e.

$$\frac{\partial V(M)}{\partial n}|_S = 0 \quad (5)$$

The following two theorems are then proved:

Theorem 1. If the function $V(M)$ is a solution of Eq.(2),(3) and (4) then it satisfies the integral equation

$$V(M) = ZcG(M,0) - \frac{a}{4\pi} \int_D G(M,N) V^{3/2}(N) d\tau_N \quad (6)$$

where $G(M,N)$ is the Green function for the region D , and

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satisfies the condition

$$G(M,N) = \frac{1}{r(M,N)} + g(M,N), G(M,N)|_S = 0, \Delta g(M,N) = 0 \quad (7)$$

where $r(M,N)$ is the distance between M and N . Conversely, if $V(M)$ is a continuous function throughout D except for the point O , and this function satisfies Eq.(6), then $V(M)$ is a solution of the problem defined by Eq.(2), (3) and (4).

Theorem 2. If the function $V(M)$ is a solution of the problem defined by Eq.(2), (3) and (5), then it will satisfy the integral equation

$$V(M) = ZcG_1(M,O) - \frac{a}{4\pi} \int_D G_1(M,N)V^{3/2}(N)d\tau_N - \frac{C_1}{4\pi} \int_S V(N)ds \quad (15)$$

subject to the condition

$$\frac{a}{4\pi} \int_D V^{3/2}(N)d\tau_N = Zc, \quad (16)$$

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where $G_1(M, N)$ is the Green function in the Neumann problem, and satisfies the condition

$$G_1(M, N) = \frac{1}{r(M, N)} + g_1(M, N), \Delta g_1(M, N) = 0, \left. \frac{\partial G_1(M, N)}{\partial n} \right|_S = C_1. \quad (17) \quad (17)$$

Conversely, if $V(M)$ is a continuous function throughout D except for the point O , and this function satisfies Eq. (15) subject to the condition given by Eq. (16), then $V(M)$ is a solution of the problem defined by Eq. (2), (3) and (5). The integral equation for the problem defined by Eq. (2), (3) and (5) can also be obtained with the aid of the function $G_2(M, N)$ which satisfies the following conditions in D :-

$$G_2(M, N) = \frac{1}{r(M, N)} + g_2(M, N), \Delta g_2(M, N) = 0, \left. \frac{\partial G_2(M, N)}{\partial n} \right|_S = 0. \quad (19) \quad (19)$$

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In this case the integral equation is of the form

$$V(M) = Z\phi_0(M, 0) - \frac{a}{4\pi} \int_D \phi_0(M, N) V^{3/2}(N) d\tau_N + \frac{C_1}{4\pi} \int_S V(N) d\tau_N. \quad (20)$$

The constants C_1 and C_2 in Eq.(17) and (19) have the following meanings: $C_1 = -4\pi/s$, $C_2 = 4\pi/\Omega$ where s is an area on S and Ω is a volume in D . Thus, the problem defined by Eq.(2), (3) and (5) is equivalent to the integral equation

$$V(M) = Z\phi_0(M, 0) - \frac{a}{4\pi} \int_D \phi_0(M, N) V^{3/2}(N) d\tau_N + C, \quad (21)$$

where C is a constant, $G(M, N)$ is a function which satisfies either Eq.(17) or Eq.(19). The constant on the right-hand side of Eq.(21) can be determined with the aid of the condition given by Eq.(16). This theory is then used for a compressed atom in the case of spherical symmetry. It is found that the problem can be solved to any desired degree of accuracy. Numerical calculations

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carried out by L.M.Magat and I.M.Merkovich have shown that the second approximation already provides a satisfactory solution. Acknowledgments are expressed to Professor V.K.Ivanov for valuable advice and to A.N.Orlov for suggesting this subject. There are 1 table and 7 references: 4 Soviet and 3 non-Soviet (one of which is translated into Russian).

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1

16(1) 16.3500

AUTHOR: Anishchenko, R.I.

67897

SOV/20-129-5-1/64

TITLE: Singular Positive Solutions of Some Elliptic Equations

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 129, Nr 5, pp 967-970 (USSR)

ABSTRACT: In the finite domain D of the three-dimensional space the author considers the Neuman problem for the equation

$$(1) \quad \Delta v(M) = f(v(M), M),$$

if $v(M)$ has a singularity of the type

$$(2) \quad \lim_{M \rightarrow 0} [v(M)r(M,0)] = A$$

in the point $0 \in D$. Here Δ is the Laplace operator, $r(M,0)$ is the distance between M and 0 and A is a positive constant. It is assumed: 1. $f(v, M)$ is continuous for $v \geq 0, M \in D$; $f(0, M) = 0$;

2) $\frac{\partial f}{\partial v} \geq 0$ for $v \geq 0$, $\frac{\partial f}{\partial v} > 0$ for $v > 0, M \in D$, $\frac{\partial f}{\partial v}$ - continuous;

3) $\frac{\partial^2 f}{\partial v^2} \geq 0$ and continuous for $v > 0, M \in D$; 4) for all $v > 0$ and

fixed M it holds $f(v, M) = O(v^{2-k})$, $\frac{\partial f}{\partial v} = O(v^{1-k})$, where $k > 0$. The

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boundary of D is a Lyapunov surface. The author investigates

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Singular Positive Solutions of Some Elliptic Equations SOV/20-129-5-1/64

solutions of the type $V(M) = \frac{F(M)}{r(M,0)}$, where $F(M)$ is continuous in D and two times differentiable everywhere (at most with the exception of 0). In the neighborhood of 0 let $\frac{\partial F}{\partial r} = O(r^{-\delta})$, $\delta < 1$. Let the boundary condition be

$$(3) \quad \frac{\partial V}{\partial n} \Big|_S = 0.$$

Theorem 1: Let there exist a function $V_1(M)$ with the following properties:

1) $V_1(M) = F(M)/r(M,0)$, where $F(M) > 0$ is continuous in D and

$F(0) = A$.

2) $V_1(M)$ is two times continuously differentiable in D (at most with the exception of 0); $f(V_1, M) - \Delta V_1 \geq 0$ and $f(V_1, M) - \Delta V_1 = O(r^{k-2})$, $k > 0$, in the neighborhood of 0 .

3) $V_1(M)$ satisfies (3).

Then (1)-(2)-(3) has at least one solution.

Theorem 2: The problem (1)-(2)-(3) has a unique solution.

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Singular Positive Solutions of Some Elliptic Equations SOV/20-129-5-1/64

The author mentions Chaplygin. He thanks Professor V.K.Ivanov for the interest in the paper.

There are 5 references, 2 of which are Soviet, 1 American, 1 Polish, and 1 French.

ASSOCIATION: Institut fiziki metallov Akademii nauk SSSR (Institute of Physics of Metals, AS USSR)

PRESENTED: July 28, 1959, by M.A.Lavrent'yev, Academician

SUBMITTED: July 17, 1959

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88175
S/140/60/000/006/001/018
C111/C222

16.3500

AUTHOR:

Anishchenko, R.I.

TITLE: On a Nonlinear Differential Equation

PERIODICAL:

Izvestiya vysshikh uchebnykh zavedeniy. Matematika, 1960,
No. 6, pp. 3 - 10

TEXT: Theorem 1: Given the equation
 $y'' = \varphi(x, y, C)\psi(x)$,

(3)
where

- 1). $\varphi(x, y, C)$ for $x \geq 0, y \geq 0, C \geq 0$ is continuous in x, y, C .
- 2). $\varphi(x, y, C) \geq 0$ for $x \geq 0, y \geq 0, C > 0$
- 3). $\varphi(x, 0, 0) = 0$ for $x \geq 0$
- 4). $\varphi(x, y, C)$ is increasing in y and C in the considered region.
- 5). $\frac{\partial \varphi}{\partial y}$ exists and is continuous, where $\frac{\partial \varphi}{\partial y} \geq K(x, y, C) > 0$ for $x > 0, C > 0, y \geq 0$ (condition 5) is superfluous).

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- 6). $|\varphi(x, \bar{y}, \bar{c}) - \varphi(x, y, c)| \leq K_1 |\bar{y} - y| + K_2 |\bar{c} - c|$
- 7). $\varphi(x, a, 0)$ has a positive lower bound in $[0, +\infty)$ for every $a > 0$.
- 8). $\psi(x)$ is continuous, positive for every $x > 0$, integrable on every interval $[0, X]$ where $\int_0^{\infty} \psi(x) dx = +\infty$.
- 9). there exists a continuous function $y = \mu(x, c)$ monotonely decreasing for $x \geq 0$ so that $\mu(0, c) = 0$ and $\varphi(x, \mu(x, c), c) = 0$.
- Then the problem $y'' = \varphi(x, y, c) \psi(x)$,
- (4) $y(0) = y_0$,
- (5) $y(R) = y'(R) = 0$

has exactly one solution.

Theorem 2: Let for a $c > 0$ exist the solution of (3) + (5). Let exist a function $v_0(x) \geq 0$ so that 1) $v_0(R) = v'_0(R) = 0$ 2) $v''_0(x) \leq y''(x)$

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On a Nonlinear Differential Equation

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The author thanks Professor V.K. Ivanov. There are 3 references : 1 Soviet,
1 American and 1 Italian.

ASSOCIATION: Ural'skiy gosudarstvennyy universitet imeni A.M. Gor'kogo
(Ural State University imeni A.M. Gor'kiy)

SUBMITTED: December 16, 1958

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S/199/61/002/002/001/004
B112/B229

AUTHOR: Anishchenko, R. I.

TITLE: Existence theorems and a method of successive approximation for a certain nonlinear differential equation

PERIODICAL: Sibirskiy matematicheskiy zhurnal, v. 2, no. 2, 1961, 161-178

TEXT: A problem of the statistical theory of the atom causes the author to examine the existence, uniqueness, and approximation of solutions of the differential equation: $y'' = f(x, y)\phi(x)$, either complying with the conditions: $y(0) = y_0$, $Ry'(R) - y(R) = -q$ with $y_0 > q > 0$, $R > 0$ or with the conditions: $y(0) = y_0$, $x_0 y'(x_0) - y(x_0) = -q$, $y(x_0) = Ax_0$ with $y_0 > q > 0$, $A > 0$. Regarding the functions $f(x, y)$ and $\phi(x)$ the author assumes that: 1) $f(x, y)$ is continuous for $x \geq 0$, $y \geq 0$; 2) $f(x, 0) > 0$ for $x > 0$; 3) $f(x, y)$ is an increasing function with respect to y for $y \geq 0$, $x \geq 0$; 4) in the range $Q \geq y \geq \alpha > 0$, $P \geq x \geq 0$ $f(x, y)$ satisfies a

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Existence theorems and ...

Lipschitz condition with respect to y ; 5) $\phi(x)$ is a continuous function which is positive for $x > 0$ and integrable in any interval $[0, X]$ with $X > 0$,

and $\int_0^{+\infty} \phi(x)f(x,0)dx = +\infty$. The problem formulated like this is equivalent

to the following differential equation: $y'' = f(x, y + Cx)\phi(x)$ with the conditions: $y(0) = y_0$, $y(R) = q$, $y'(R) = 0$ and $y(x) + Cx \geq 0$, $0 \leq x \leq R$,

and with the conditions: $y(0) = y_0$, $y'(x_0) = 0$, $y(x_0) = q = (A - C)x_0$ and $y(x) + Cx \geq 0$, $0 \leq x \leq x_0$. The author proves the solvability and

uniqueness of this problem for positive q . The solutions $y(x)$ are approximated by a sequence of functions $y_n(x)$, which satisfy the integral

equations: $y_n(x) = q + \int_x^R (s - x)\phi(s)f(s, y_n(s) + C_n s) ds$ and certain

additional conditions. Moreover, the accuracy of this approximation is

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S/199/61/002/002/001/004
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AUTHOR: Anishchenko, R. I.

TITLE: Existence theorems and a method of successive approximation for a certain nonlinear differential equation

PERIODICAL: Sibirskiy matematicheskiy zhurnal, v. 2, no. 2, 1961, 161-178

TEXT: A problem of the statistical theory of the atom causes the author to examine the existence, uniqueness, and approximation of solutions of the differential equation: $y'' = f(x,y)\phi(x)$, either complying with the conditions: $y(0) = y_0$, $Ry'(R) - y(R) = -q$ with $y_0 > q > 0$, $R > 0$ or with the conditions: $y(0) = y_0$, $x_0 y'(x_0) - y(x_0) = -q$, $y(x_0) = Ax_0$ with $y_0 > q \geq 0$, $A > 0$. Regarding the functions $f(x,y)$ and $\phi(x)$ the author assumes that: 1) $f(x,y)$ is continuous for $x \geq 0$, $y \geq 0$; 2) $f(x,0) > 0$ for $x > 0$; 3) $f(x,y)$ is an increasing function with respect to y for $y \geq 0$, $x \geq 0$; 4) in the range $Q \geq y \geq \alpha > 0$, $P \geq x \geq 0$ $f(x,y)$ satisfies a

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S/199/61/002/002/001/004
B112/B229

Existence theorems and ...

Lipschitz condition with respect to y ; 5) $\psi(x)$ is a continuous function which is positive for $x > 0$ and integrable in any interval $[0, X]$ with $X > 0$,

and $\int_0^{+\infty} \psi(x)f(x,0)dx = +\infty$. The problem formulated like this is equivalent

to the following differential equation: $y'' = f(x, y + Cx)\psi(x)$ with the conditions: $y(0) = y_0$, $y(R) = q$, $y'(R) = 0$ and $y(x) + Cx \geq 0$, $0 \leq x \leq R$,

and with the conditions: $y(0) = y_0$, $y'(x_0) = 0$, $y(x_0) = q = (A - C)x_0$

and $y(x) + Cx \geq 0$, $0 \leq x \leq x_0$. The author proves the solvability and uniqueness of this problem for positive q . The solutions $y(x)$ are approximated by a sequence of functions $y_n(x)$, which satisfy the integral

equations: $y_n(x) = q + \int_x^R (s - x)\psi(s)f(s, y_n(s) + C_n s) ds$ and certain

additional conditions. Moreover, the accuracy of this approximation is

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Existence theorems and ...

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estimated. The author thanks Professor V. K. Ivanov for his interest in the present work. There are 4 references: 1 Soviet-bloc and 1 non-Soviet-bloc.

SUBMITTED: March 1, 1960

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ANISHCHENKO, R.I.

New method of solving the Thomas-Fermi-Dirac equations. Fiz.
met. i metalloved. 12 no.1:11-15 J1 '61. (MIRA 14:8)

1. Institut fiziki metallov AN SSSR.
(Electrons--Scattering)

ANISHCHENKO, R.I.

Boundary value problem for Thomas - Fermi and Thomas - Fermi -
Dirac equations. Dokl. AN SSSR 145 no.3:483-486 J1 '62. (MIRA 15:7)

1. Institut fiziki metallov AN SSSR. Predstavleno akademikom
M.A. Lavrent'yevym. (Atomic theory)
(Boundary value problem)

ANISHCHENKO, R. I.

45110

S/199/63/004/001/001/005
B112/B102

AUTHOR: Anishchenko, R. I.

TITLE: A boundary value problem for the Thomas-Fermi-Dirac equation

PERIODICAL: Sibirskiy matematicheskiy zhurnal, v. 4, no. 1, 1963, 3 - 16

TEXT: The boundary-value problem $\varphi'' = f(x, \varphi)\varphi(x)$ ($0 \leq x \leq R$) (1)
 $\varphi(0) = y_0$, $R\varphi'(R) - \varphi(R) = -q$ ($q < 0$, $y_0 > 0$, $R > 0$) (2) is considered under
the following assumptions: (1) f is continuous for $x \geq 0$, $y \geq 0$; (2) $f(a, y) \rightarrow +\infty$ for $y \rightarrow +\infty$, $a > 0$; (3) $f(x, 0) > 0$ for $x > 0$; (4) $f(x, y)$ satisfies a
Lipschitz condition with respect to y in the region $Q \gg y \gg x > 0$, $P \gg x \gg 0$
($Q, P, Q > 0$); (5) $\varphi(x)$ is continuous and positive for $x > 0$, integrable
over an arbitrary interval $[0, X]$, and

$\int_0^R \varphi(x)f(x, 0)dx = +\infty$. It is shown that the problem (1)-(2) possesses a

unique and non-negative solution $\varphi(x)$ for all numbers R of a certain interval $[0, x]$ and only for these numbers. In addition to the problem (1)-(2),
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A boundary value ...

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B112/B102

which corresponds to the case of a negatively charged ion in the statistical theory of the atom, some other similar problems are investigated.

SUBMITTED: March 12, 1961

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ACCESSION NR: AP4039564

S/0199/64/005/003/0481/0492

AUTHOR: Anishchenko, R. I.

TITLE: A boundary value problem

SOURCE: Sibirskiy matematicheskiy zhurnal, v. 6, no. 3, 1964, 481-492

TOPIC TAGS: boundary problem, boundary value problem, bounded function

ABSTRACT: In a series of earlier papers the author has considered the problem of finding nonzero solutions of the equation:

$$\varphi'' = f(x, \varphi) \psi(x) \quad (1)$$

under the conditions

$$\varphi(0) = y_0, \quad R\varphi'(R) - \varphi(R) = -q \quad (2)$$

for $0 \leq x \leq R$, where y_0, R, q are given real numbers, $y_0 > 0, R > 0$. The functions $f(x, \varphi)$ and $\psi(x)$ satisfy certain conditions. Under these conditions and for $y_0 > q > 0$ the solution exists for and only for all R in some subinterval $(0, x]$. In the present paper the

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ACCESSION NR: AP4039564

author shows that the upper bound X of the region of existence depends continuously on the boundary data y_0 and q in every rectangle $a \leq y_0 \leq b$, $c \leq q \leq d$, where $a > \max(0, d)$. Also under certain subsidiary assumptions he considers the question of the continuous dependence of the solution on the boundary data y_0 , q , R . "The author thanks Prof. V. K. Ivanov for helpful discussions." Orig. art. has: 43 formulas.

ASSOCIATION: none

SUBMITTED: 15Jan63

DATE ACQ: 18Jun64

ENCL: 00

SUB CODE: MA

NO REF SOV: 003

OTHER: 001

Card 2/2

ANISCHENKO, R.I.

Calculation of the form factor in a TFD model for atoms in a
lattice. Fiz. met. i metalloved. 18 no.6:941-944 D '64.
(MIRA 18:3)

1. Institut fiziki metallov AN SSSR.

ANISHCHENKO, R.I.; TALUTS, G.G.

Incoherent scattering of X rays in the Thomas-Fermi-Dirac model
for atoms in a metal. Fiz.met. i metalloved. 18 no.5:641-644 N
'64. (MIRA 18:4)

1. Institut fiziki metallov AN SSSR.

ANISHCHENKO, R.I.; NIKOLAYEV, A.P.; MEN', A.N.

Calculation of parameters characterizing the energy spectrum
of impurity ions in crystal fields of various symmetry. Teoret.
i eksper. khim. 1 no. 5:687-690 S-O '65 (MIRA 19:1)

1. Institut metallurgii, Sverdlovsk. Submitted July 5, 1965.

L 5402-66 EWT(1)/ENT(m)/EPA(w)-2/EWP(t)/EWP(b)/ENA(m)-2 IJP(c) JD/AT
ACC NR: AP5027398 SOURCE CODE: UR/0181/65/007/001/3227/323352
AUTHOR: Anishchenko, R. I. 09.55 47 B
ORG: Institute of Physics of Metals, AN SSSR, Sverdlovsk (Institut fiziki metal-
lov AN SSSR) 21.14.95
TITLE: Distribution of electron density and x-ray scattering intensity for atoms
and ions in the lattice in a statistical model
SOURCE: Fizika tverdogo tela, v. 7, no. 11, 1965, 3227-3233
TOPIC TAGS: Fermi Dirac statistics, nuclear model, incoherent scattering, x ray
scattering, electron density, particle radius
ABSTRACT: The author considers the effect which packing (compression of the atom or
ion in the lattice) has on the distribution of electron density and the intensity
of x-ray scattering within the framework of the Thomas-Fermi-Dirac statistical
model. Limits for application of the statistical model are given for various de-
grees of ionization. A formula is derived for the intensity of incoherent x-ray
scattering for compressed ions in the Thomas-Fermi-Dirac model. Limiting radii are
given in table 1 for various metal atoms and ions from magnesium to gold. Intensi-
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ACC NR: AP5028398

ty of incoherent scattering is shown for various metallic atoms and ions in table
2. Packing for positive ions has a considerable effect on distribution of electron
density, form factor and intensity of incoherent scattering.

Table 1. Limiting Radii

Z	$Z - N = +3$	$Z - N = -1$	$Z - N = -2$	$Z - N = -3$	$Z - N = -4$
12	4.542	14.59	15.71	16.40	16.91
13	4.823	15.05	16.20	16.91	17.43
20	6.476	17.77	19.09	19.91	20.50
22	6.877	18.43	19.79	20.64	21.25
24	7.254	19.05	20.45	21.32	21.96
25	7.435	19.35	20.77	21.65	22.29
26	7.612	19.64	21.08	21.97	22.62
29	8.117	20.48	21.96	22.89	23.56
30	8.278	20.74	22.24	23.18	23.86
38	9.455	22.68	24.30	25.31	26.05
40	9.724	23.12	24.77	25.80	26.55
42	9.984	23.55	25.23	26.27	27.04
47	10.64	24.57	26.30	27.39	28.18
56	11.66	26.23	28.07	29.22	30.06
72	13.20	28.81	31.42	32.05	32.96
76	13.54	29.39	31.87	32.69	33.62
79	13.80	29.82		33.16	34.10

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L 5402-66

ACC NR: AP5027398

Table 2. Intensity of Incoherent Scattering for Metallic Atoms and Ions

k	Zn	Zn ²⁺	V	Zr	Mo	Mo ³⁺	Ru	Rh	Ag
0.05	2.112	1.949	2.667	2.593	2.521	2.367	2.531	2.565	2.703
0.10	4.176	3.849	5.230	5.113	4.993	4.684	5.019	5.086	5.351
0.15	6.144	5.655	7.586	7.488	7.367	6.904	7.421	7.522	7.892
0.20	7.969	7.316	9.634	9.644	9.593	8.977	9.696	9.827	10.27
0.25	9.603	8.792	11.40	11.51	11.63	10.85	11.80	11.96	12.44
0.30	11.00	10.10	12.97	13.13	13.41	12.52	13.69	13.88	14.34
0.35	13.00	11.26	14.38	14.59	14.96	14.02	15.33	15.54	16.00
0.40	13.27	12.31	15.67	15.91	16.35	15.39	16.79	17.02	17.51
0.45	14.23	13.26	16.85	17.11	17.61	16.64	18.11	18.36	18.89
0.50	15.10	14.13	17.94	18.22	18.78	17.80	19.32	19.60	20.16
0.55	15.91	14.93	18.94	19.25	19.85	18.86	20.44	20.74	21.34
0.60	16.64	15.66	19.87	20.20	20.85	19.86	21.48	21.80	22.43
0.65	17.32	16.34	20.73	21.09	21.77	20.78	22.45	22.78	23.46
0.70	17.95	16.96	21.54	21.91	22.64	21.65	23.35	23.71	24.41
0.75	18.54	17.54	22.29	22.68	23.45	22.45	24.20	24.57	25.31
0.80	19.08	18.09	23.00	23.41	24.21	23.21	25.00	25.38	26.16
0.90	20.06	19.07	24.29	24.73	25.60	24.60	26.45	26.87	27.70
1.00	20.92	19.93	25.43	25.90	26.83	25.83	27.74	28.19	29.09
1.10	21.68	20.68	26.44	26.95	27.93	26.93	28.90	29.38	30.33
1.20	22.35	21.36	27.36	27.89	28.93	27.92	29.95	30.45	31.45

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L 5402-66

ACC NR: AP5027398

In conclusion, the author thanks N. Z. Khramtsova for performing the calculations.
Orig. art. has: 4 figures, 2 tables, 8 formulas. ³

SUB CODE: NP/

SUBM DATE: 08May65/

ORIG REF: 004/

OTH REF: 005

BVK.
Card 44/4.

ACC NR: AP5018855 EWI(M)/I/ENP(t)/ENP(b)/EWA(c) JD

SOURCE CODE: UR/0126/65/020/001/0038/0043

AUTHOR: Kurmayev, E. Z.; Men'shikov, A. Z.; Anishchenko, R. I.;
Nemnonov, S. A.

ORG: Institute of Physics of Metals AN SSSR (Institut fiziki metallov
AN SSSR)

TITLE: The question of determining the number of 3d electrons in transition metals of the iron group on the basis of coherent and incoherent scattering of x ray beams

SOURCE: Fizika metallov i metallovedeniye, v. 20, no. 1, 1965, 38-43

TOPIC TAGS: transition element, coherent scattering, incoherent scattering, secondary emission

ABSTRACT: Experimental and theoretical work on the study of x ray structure factors of pure metals and alloys is surveyed. To check the reliability of the Kuriyama [Kuriyama M., Josoya S. a. Suzuki T. *Phys. Rev.*, 1963, 130, 898] method, the absolute intensity of incoherent scattering for aluminum was measured and plotted. However, the Compton scattering in the transition metals of the iron group could not be measured by this method because of secondary radiation in both sample and absorber. It

Card 1/2

UDC: 539.26

Card 2/2

L 13121-66

ACC NR: AP5018855

is considered that it is not possible to obtain reliable information on the condition of 3d electrons in transition metals of the iron group with present methods. Orig. art. has: 4 figures.

SUB CODE: 18,11/ SUBM DATE: 21Jul64/ ORIG REF: 011/ OTH REF: 027

Card 2/2

HW

L 21232-66 EWT(1)/EWT(m)/ENP(t) IJP(c) JD/AT

ACC NR: AP6003802

SOURCE CODE: UR/0181/66/008/001/0251/0253

AUTHORS: Anishchenko, R. I.; Nikolayev, A. P.; Men's, A. N.

ORG: Institute of Metallurgy, Sverdlovsk (Institut metallurgii) 57
56

TITLE: On the calculation of the diamagnetic susceptibility in B
the statistical model

SOURCE: Fizika tverdogo tela, v. 8, no. 1, 1966, 251-253

TOPIC TAGS: diamagnetism, magnetic susceptibility, statistic
physics, crystal lattice structure, ion interaction, paramagnetism,
conduction electron

ABSTRACT: The authors used (the Thomas-Fermi-Dirac (TFD) (statistical
model to calculate the electron density and from it the diamagnetic
susceptibility. It is assumed that for each atom (ion) the distri-
bution of the charge is spherically-symmetrical within a sphere of
radius R_0 , and that the potential satisfies certain relations. The
diamagnetic susceptibility calculations are presented for Cu, Zn,
Ag, Mg, and O and some of their ions. The results show that the

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ACC NR: AP6003802

susceptibility depends not only on the type of the ion but also on the position in the crystal. The experimental values of the susceptibility for pure metals differ from those calculated because of the paramagnetism of the ionic core. Satisfactory agreement with experiment is obtained if it is assumed that the diamagnetic susceptibility of the conduction electrons amounts to about one-third of the paramagnetic susceptibility. The diamagnetic susceptibility of compounds is calculated in the additive approximation and is found to be in fair agreement with the experimental data. Orig. art. has: 5 formulas and 2 tables.

SUB CODE: 20/ SUBM DATE: 23Jul65/ ORIG REF: 005/ OTH REF: 005

Card 2/2 dda

ANISHCHENKO, S.M., aspirant (Odessa, B-52, ul. Stepana Razina, d.18, kv.1)

Growth stimulation of the long tubular bones by the introduction
of heterotransplants into the metaphysis. Nov.khir.arkh. no.4:49-
52 '62. (MIRA 15:5)

1. Kafedra khirurgii i ortopedii detskogo vozrasta (zav. - prof.
M.L. Dmitriyev) Odesskogo meditsinskogo instituta.
(BONE GRAFTING)

9.1300,9.1200,9.3700

77968

SOV/109-5-3-22/26

AUTHORS:

Shubarin, Yu. V., Anishchenko, T. ^N~~H~~

TITLE:

Waveguide-Slot Radiator With Elliptical Polarization on a Circular Waveguide (Brief Communication)

PERIODICAL:

Radiotekhnika i elektronika, 1960, Vol 5, Nr 3, pp 518-520 (USSR)

ABSTRACT:

On the inside walls of a cylindrical waveguide (Fig. 1) excited by an H_{11} wave, the amplitude ratio of orthogonal magnetic field components is:

$$\frac{H_z}{H_r} = i \frac{1}{\lambda} \lg \varphi = -\frac{i}{\lambda} \left[\sqrt{\left(\frac{2\pi a}{\lambda} \right)^2 - 1} \lg \tau \right] \quad (1)$$

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where a is waveguide radius; $U = 1,841$ is first root of Bessel's function first derivative;

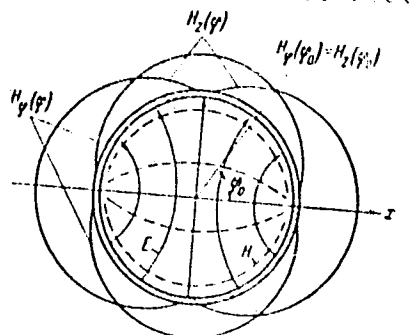
Waveguide-Slot Radiator With Elliptical
Polarization on a Circular Waveguide
(Brief Communication)

77958

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$$\tau = \sqrt{\left(\frac{2\pi}{\lambda}\right)^2 - \left(\frac{\nu}{a}\right)^2}$$

is propagation constant; λ is wavelength; φ is polar
angle in waveguide cross section.



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Fig. 1. H_{11} wave field configuration in a round waveguide.

Waveguide-Slot Radiator With Elliptical
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(Brief Communication)

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Equation (1) shows that the magnetic field orthogonal components on the waveguide wall are mutually shifted in phase by 90° , and their amplitude ratio is a function of wavelength, waveguide radius, and polar angle. The magnetic field vector on waveguide wall (and also the surface current vector) is elliptically polarized, and its rotation is reversed when the direction of wave propagation along the waveguide changes, or values of φ go through multiples of $\pi/2$. The condition $H^\varphi/H_z = \pm i$ is satisfied for angles:

$$\varphi_0 = \pm \text{Arc ctg } \frac{1}{\nu} \sqrt{\left(\frac{2\pi a}{\lambda \nu}\right)^2 - 1} + n\pi, \quad (2)$$

(where $n = 0; 1$); the magnetic field vector is circularly polarized; the cross-shaped aperture radiates in the direction of a normal to the tangent plane of the waveguide for a field with circular polarization. This

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type of radiator propagates such a radiation within a certain range of frequencies, while a radiator on a rectangular waveguide can radiate a circularly polarized field on one frequency only. Variation of frequency causes only a rotation of the polarization plane of wave H_{11} . Using Eq. (1), the dependence of the uniformity coefficient of the radiated field polarization characteristic on the turning angle of the H_{11} wave polarization plane in the waveguide and on the frequency may be calculated. The results were checked experimentally. The experimental installation (Fig. 2) consists of a section of a round waveguide with a cross-slot 1, transition junction from round to rectangular cross section 2, full resistance transformer 3, antenna equivalent 4, generator 5, modulated by rectangular pulses attenuator 6, wavemeter 7. A klystron, type K-31 ($\lambda = 3.5-4.36$ cm), and wavemeter 35-N were used. The radiated field polarization was analyzed by a rotating linearly polarized horn antenna 8 with

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Waveguide-Slot Radiator With Elliptical
Polarization on a Circular Waveguide
(Brief Communication)

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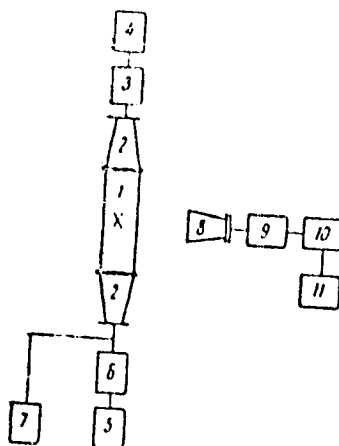
SOV/109-5-3-22/26

attenuator 9, detector section 10 (field indicator type 38-И) and measuring amplifier type 28-И (11). The cross slot was cut in the round section of 30 mm diam waveguide. The slot was calculated for $f = 7,282$ mc; Length of slot 19 mm, width 1.5 mm. At the beginning of an experiment the crosswise slot was set at an angle φ_0 to the polarization plane of wave H_{11} in the waveguide, so as to obtain a field radiation with circular polarization. By regulation of the full resistance transformer, the uniformity coefficient of the polarization characteristic was made as close to one as possible. Then, the uniformity coefficient in relation to the turning angle of wave H_{11} polarization with respect to the slot was measured. Figure 3a shows experimental results for $f = 7,282$ mc by dots, which closely follow the theoretical curve for angles where the polarization is close to circular. The same is true for Fig. 3b for $f = 7,653$ mc, and for $f = 8,495$ mc per Fig. 3c. The uniformity coefficient of polarization characteristic for $f = 7,282$ mc reaches 0.95, and the dumbbell

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Waveguide-Slot Radiator With Elliptical
Polarization on a Circular Waveguide
(Brief Communication)

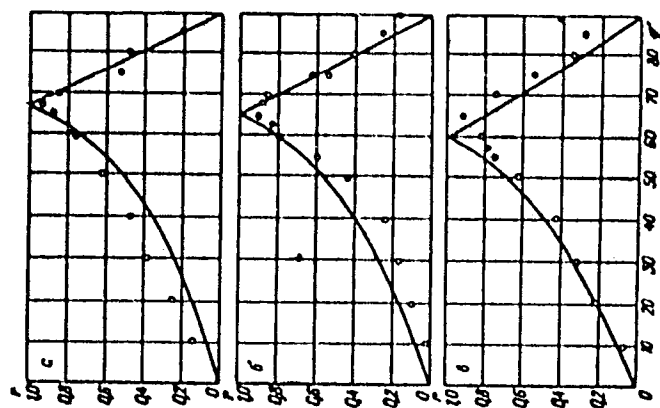
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Fig. 2. Experimental installation layout.

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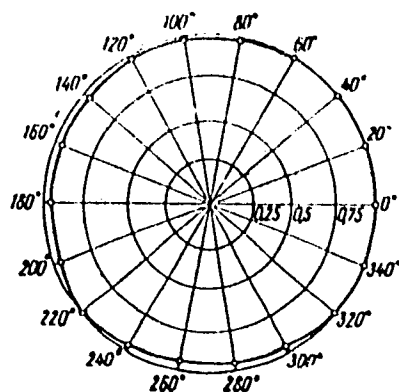
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Fig. 3. Uniformity coefficient of polarization characteristic vs. angle φ of polarization plane turn.

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Fig. 4. Dumbbell curve taken at $f = 7,282$ mc and $\varphi_0 = 67^\circ$.

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curve in Fig. 4 is close to a circle. Figure 3b is of special interest, because at the respective frequency the E_{01} wave is present, as well as basic H_{11} wave. The slotted waveguide radiator can be used in a number of installations as: (1) antenna with controllable polarization characteristic, which can be regulated by generally known components, e.g., ferrite polarization plane shifters using the Faraday effect; (2) radiator of circularly polarized field, working over a frequency range. There are 4 figures; and 1 Soviet reference.

ASSOCIATION: Khar'kov State University imeni A. M. Gor'kiy (Khar'kovskiy gosudarstvennyy universitet imeni A. M. Gor'kogo)

SUBMITTED: July 7, 1959

Card 9/9

9/19/10 (2303, 2604, 2904)
9/19/23 (2402, 2603)

20437
S/109/60/005/012/029/035
E192/E582

AUTHORS: Shubarin, Yu. V. and Anishchenko, T. N.

TITLE: Slot Antenna with Elliptic Polarization in a Circular Waveguide Operating Under the Receiving Conditions

PERIODICAL: Radiotekhnika i elektronika, 1960, Vol.5, No.12, pp. 2057-2059

TEXT: A waveguide-slot radiating antenna operating as a transmitter was investigated in an earlier paper (Ref.1). In the following this antenna is investigated as a receiver of a linearly polarized wave. It is assumed that the direction of incidence of the wave coincides with the normal to the wall of the waveguide at which a cross-shaped slot is situated (see Fig.1). The magnetic vector of the incident wave has two orthogonal components H_0 and H_1 , which are oriented in parallel to the transverse slot 1 and the longitudinal slot 2. The transverse slot excites a wave $H_{(1)}$ inside the waveguide, whilst the longitudinal slot produces a wave $H_{(2)}$ whose polarization plane is perpendicular to the direction of the centre of the slots. Now it is shown that the

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20431

S/109/60/005/012/029/039
E192/E582

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regularity coefficient of the field excited in the waveguide is
given by

$$K = \frac{H_{0m}^{(1)}}{H_{0m}^{(2)}} = \frac{\lg s}{\frac{1}{\sqrt{\left(\frac{2\pi a}{\lambda v}\right)^2 - 1}}} \quad (4)$$

where a is the radius of the waveguide, v is the first root of the derivative of the Bessel function, λ is the wavelength, ϕ is the angle measured in the transverse cross-section of the waveguide and η is the angle between the electric component of the incident wave and the unit vector $\vec{\phi}$. If a field having a circular polarization is excited, the position of the polarization plane of this wave is determined by

$$\lg s = \frac{1}{\sqrt{\left(\frac{2\pi a}{\lambda v}\right)^2 - 1}} = \lg \phi \quad (5)$$

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where $\eta_0 = 90^\circ - \varphi_0$, where φ_0 is the angle at which the slot radiates a field with circular polarization. The system was also investigated experimentally by means of equipment consisting of an oscillator which was modulated by means of rectangular pulses, an attenuator, a wavemeter, a linearly polarized horn antenna, a section of a circular waveguide with the slot, which was connected to a standard rectangular waveguide, a detector section and a measuring amplifier. The cross-shaped slot was cut in the circular waveguide whose diameter was 23 mm. The length of the slot was 10 mm and its width 1.5 mm. The experimental results are shown in two figures. These give the dependence of the field regularity coefficient r on the angle η between the polarization plane and the unit vector $\bar{\varphi}$. It is found that the experimental results are in good agreement with the theoretical curves calculated from Eqs. (4) and (5). It is concluded on the basis of the experimental and theoretical data that the above antenna can be used as a polarizer permitting the conversion of a linearly

Card 3/4.

20431
S/109/60/005/012/029/035
E192/E582

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polarized field into an arbitrarily polarized field. There are
4 figures and 1 Soviet reference.

SUBMITTED: May 3, 1960.

Fig.1

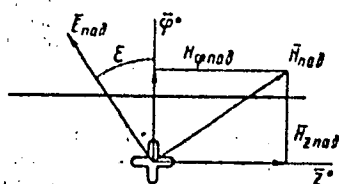


Рис. 1. Разложение падающей вол-
ны на составляющие

Card 4/4

S/058/63/000/002/065/070
A160/A101

AUTHORS: Shubarin, Yu. V., Anishchenko, T. N.

TITLE: The measurement of the coefficients of the scattering matrix of irregularities in a waveguide

PERIODICAL: Referativnyy zhurnal, Fizika, no. 2, 1963, 38 - 39, abstract ZZh234 ("Uch. zap. Khar'kovsk. un-t", 1962, v. 121, Tr. Radiofiz. fak., 5, 100 - 107)

TEXT: Proposed is a modification of the method of short-circuited piston, developed by Deshan (Referativnyy zhurnal, Fizika, no. 6, 1954, 6437). The modification reduces the volume of the experiment and eliminates graphical plots. Investigated is the theory of the method, and a description is given of the block diagram of the measuring installation and of the measuring method. Measurements were carried out of the scattering coefficients of a slotted radiator in the form of a cross-shaped slot cut into the wall of a rectangular waveguide. The measurements were conducted experimentally by Deshan's method and by the proposed method. The experimental dependences of the modules of the reflection

Card 1/2

S/058/63/000/002/065/070
A160/A101

The measurement of the coefficients of...

coefficient and of the transmission coefficient on the wavelength in the range of $\lambda = 3.4 \div 3.4$ cm, obtained by both methods, have the same character (the maximum relative discrepancy in the results of the measurements in the wave range is not more than 0.15). On the whole, the calculated data well correspond to the experimental ones.

Yu. Bogatyrev

[Abstracter's note: Complete translation]

Card 2/2

L 10058-63

FOS(k)/EWT(1)/BDS/EEC-2/EED-2--P1-4/PJ-4/P1-4--WR

ACCESSION NR: AR3000386

S/0058/63/000/004/H022/H022

SOURCE: RZh. Fizika, Abs. 4Zh126

AUTHOR: Shubarin, Yu. V.; Anishchenko, T. N.

TITLE: Slot radiator with rotating polarization using round waveguide

CITED SOURCE: Uch. zap. ^{25B} Khar'kovsk. un-t, v. 121, 1962, Tr. Radiofiz. fak., no. 5, 108-114

TOPIC TAGS: Slot antennas, polarized, H sub 11 mode

TRANSLATION: A radiator is considered in the form of a cruciform slot or a round aperture in the sidewall of a round waveguide in the H sub 11 mode. Since the longitudinal and the transverse currents at each point of a round waveguide in the H sub 11 mode are shifted in time by 90°, such a radiator is excited with elliptic polarization. By varying the position of the slot relative to the plane of polarization of the wave in the waveguide, it is possible to regulate the degree of ellipticity of radiation and adjust the radiator for circular

Card 1/2

L 10058-63

ACCESSION NR: AR3000386

polarization. When the radiator is used as a receiving antenna, the external linearly polarized field excites in the waveguide waves with elliptic polarization, which have opposite directions of rotation to the right and to the left of the radiator. Approximate formulas are derived for the ellipticity of the field and for the location of the radiator such as to insure circular polarization. Frequency plots are presented for the necessary angle of location of the radiator in order to obtain circular polarization, as well as plots of the coefficient of uniformity of the radiated field as a function of the angle of location of the radiator on the wall of the waveguide. A. Gridin

DATE ACQ: 14May63 ENCL: 00 SUB CODE: SP

CS/ja
Card 2/2

L 10065-63 EWT(1)/FCS(k)/BDS/EEC-2/EED-2--ASD/ESD-3/APGC--P1-4/
Pj-4/P1-4--WR

ACCESSION NR: AR3000387 S/0058/63/000/004/H022/H022

SOURCE: RZh. Fizika, Abs. 4Zh127

AUTHOR: Shubarin, Yu. V.; Anis,chenko, T. N.

TITLE: Variation of parameters of antennas with rotating polarization

CITED SOURCE: Uch. zap. Khar'kovsk. un-t. v. 121, 1962, Tr. Radiofiz. fak., no. 5, 115-120

TOPIC TAGS: antennas, rotating polarization, variation of parameters

TRANSLATION: Formulas are derived for the connection between the directivity pattern and the gain, for orthogonal components of the field, with analogous parameters for the total field of an antenna. Cases are considered where the total field is resolved into orthogonal linear components with circular polarization of opposite rotations. A procedure is proposed for determining the directivity pattern and the gain by measuring the partial directivity diagrams for the orthogonal components. If the maxima of the radiation for the orthogonal field components coincide in direction, then in order to determine the total

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L 10065-63
ACCESSION NR: AR3000387

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antenna diagram in terms of power it is sufficient to measure its partial directivity characteristics for the orthogonal components and the ratio of the amplitudes of these components to the principal radiation maxima. An analogous rule has been found for the determination of the gain. An experimental verification of the proposed procedure, carried out by means of control measurements of the gain by the substitution method, confirms their correctness.

A. Gridin

DATE ACQ: 14May63 ENCL: 00 SUB CODE: SP

lm/nh
Card 2/2

L 16185-63 FCS(k)/EWT(1)/BDS/EEC-2/EED-2 ASB/APGC P1-4/P1-4/P1-4 WR

ACCESSION NR: AR3005172

8/0058/63/000/006/H022/H022

SOURCE: RZh. Fizika, Abs. 6 Zh136

71

AUTHORS: Shubarin, Yu. V.; Anisohinko, T. N.

TITLE: Waveguide-slot antenna with elliptic polarization using triangular waveguide

25B

CITED SOURCE: Uch. zap. Khar'kovsk. un-t, v. 127, 1962, Tr. Radiofiz. Fak., v. 6, 1962, 71-74

TOPIC TAGS: Waveguide-slot antenna, triangular waveguide, principal mode

TRANSLATION: A waveguide-slot antenna is considered, using a waveguide with cross section in the form of an isosceles triangle with slots cut on the hypotenuse side. The fundamental mode in the triangular waveguide coincides with the field at the middle of a square waveguide carrying in-phase H_{10} and H_{01} modes with identical amplitudes. An expression is obtained for the magnetic field vector in the triangular waveguide carrying the principal mode. The magnetic field vector and, accordingly, the surface current density vector on the internal surface of

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L 16185-63

ACCESSION NR: AR3005172

the hypotenuse wall of the waveguide are elliptically polarized in the general case. Calculation plots are presented for the coefficient of ellipticity of the radiated field against the frequency, for three slots, and also the results of an experimental investigation of a single antenna with rotating polarization using a triangular waveguide. F. Ayzin.

DATE ACQ: 15Jul63

SUB CODE: GE, SP

ENCL: 00

Card 2/2

ANISHCHENKO, V.; CHERNYSHOVA, M., laborant

Crystallite. Prom. koop. 14 no.5:16-17 My '60. (MIRA 13:12)

1. Predsedatel' pravleniya arteli "Metallist," g.Melitopol'.
Zaporozhskoy oblast (for Anishchenko).
(Door fittings)

ANISHCHENKO, V.F.

ANISHCHENKO, V.F.

Surgical therapy of hallux valgus. Ortop.travm. i protez, no.3:
43-47 My-Je '55. (MLRA 8:10)

1. Iz Kiyevskogo respublikanskogo protezno-ortopedicheskogo
gospitalya dlya invalidov Otechestvennoy voyny.
(HALLUX,
valgus, surg.)

ANISHCHENKO, V.F.; DUBCHUK, V.D.

Certain problems in the design and manufacture of spring-hydraulic chucks for spindle drilling rigs. Mash. i nef. obr. no.5:3-7 '63. (MIRA 17:8)

1. Barnaul'skiy zavod geologorazvedochnogo oborudovaniya.

ACCESSION NR: AP4019211

S/0056/64/046/002/0492/0496

AUTHORS: Parfenova, V. P.; Anishchenko, V. N.; Shpinel', V. S.

TITLE: Oriented Tb-160 nuclei in metallic terbium

SOURCE: Zhurnal' eksper. i teor. fiz, v. 46, no. 2, 1964, 492-496

TOPIC TAGS: terbium 160, aligned nucleus, oriented nucleus, polarized nucleus, angular distribution anisotropy, hyperfine splitting constant, nuclear specific heat, effective magnetic field

ABSTRACT: An attempt was made to orient the nuclei of metallic terbium to demonstrate the possibility of using the internal magnetic fields of terbium at low temperatures to polarize the nuclei. The Tb¹⁶⁰ nuclei were polarized in a polycrystalline sample of metallic terbium cooled to 0.03--0.04K by adiabatic demagnetization of potassium chrome alum. The anisotropy of the angular distribution of the 298 keV γ rays was measured and the hyperfine structure splitting

Cord. 1/43

ACCESSION NR: AP4019211

was found to be $A = 0.054 \pm 0.007K$. The results indicate that the hyperfine splitting in metallic terbium is sufficiently large and can be used to orient the nuclei at low temperatures, but the value of the hyperfine splitting turns out to be lower than expected. Whereas the measurements yield approximately 1.4×10^6 Oe for the effective magnetic field, the value obtained by measuring the nuclear specific heat is 5.7×10^6 Oe. The reason for the discrepancy is still unknown. "In conclusion the authors thank corresponding member N. Ye. Alekseyevskiy of AN SSSR for useful advice and for a fruitful discussion, V. Sokolov for the magnetic measurements of the terbium sample, to Amin-Zaki El-Bahai, who participated in the initial stage of the work, and also to the members of the MGU Low-Temperature Physics Department, headed by corresponding member A. I. Shal'nikov of AN SSSR, for supplying the liquid helium." Orig. art. has: 3 figures and 2 formulas.

ASSOCIATION: Institut yadernoy fiziki Moskovskogo gosudarstvennogo

Card 2/43

ACCESSION NR: AP4019211

universiteta (Nuclear Physics Institute, Moscow State University)

SUBMITTED: 26Jul63

DATE ACQ: 27Mar64

ENCL: 01

SUB CODE: PH

NO REF SOV: 005

OTHER: 006

Cord 3/43

I. 21807-66 EWT(m)/EWP(t) DIAAP/IJP(c) JD/HW/JG
ACC NR: AP6012185

SOURCE CODE: UR/0386/66/003/008/0318/0321

AUTHOR: Alekseyevskiy, N. Ye.; Anishchenko, V. N.; Yerzinkyan, A. L.; Parfenova, V. P.; Shpinel', V. S.

ORG: Scientific Research Institute of Nuclear Physics of Moscow State University
im. M. V. Lomonosov (Nauchno-issledovatel'skiy institut yadernoy fiziki Moskovskogo
gosudarstvennogo universiteta)

TITLE: Effective magnetic field at the Co^{60} nucleus in the CoPd alloy

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki. Pis'ma v redaktsiyu.
Prilozheniye, v. 3, no. 8, 1966, 318-320

TOPIC TAGS: cobalt alloy, palladium containing alloy, Mossbauer effect, magnetic field measurement

ABSTRACT: In view of the fact that Mossbauer-effect measurements of the effective field H_{eff} give unambiguous results only if Fe^{57} is used, the authors measured H_{eff} at the Co^{60} nucleus in an alloy of 0.3 at.% Co with Pd, by determining the anisotropy of the γ radiation of oriented Co^{60} nuclei. The use of radioactive Co^{60} has made it possible to carry out the measurements at rather low Co concentrations. The procedure used was similar to that described earlier (ZhETF v. 46, 493, 1964). The cooling agent was a block of potassium chrome alum. The investigated

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ACC NR: AP6012185

sample, constituting a disc 3 mm in diameter and 0.2 mm thick, was soldered to the end of the cold finger, which was pressed into the salt. The intensity of 1.33- and 1.17-Mev γ quanta from Co was measured at angles 0° and 90° to the external orienting field ($H_{ext} = 5.7$ koe). The measurements have shown that thermal equilibrium is established between the cooling salt and the sample at $T \sim 0.03K$, and the values of H_{eff} obtained in both cases agree with the published data. The effective field at the Co^{60} nucleus in the CoPd alloy was measured under the same conditions (the same salt and the same cold finger), and a value $H_{eff} = (2.6 \pm 0.2) \times 10^5$ oe was obtained. This value of H_{eff} exceeds the field in the metallic Co ($H_{eff} = 2.150 \times 10^5$ oe). The result shows that the Co ion behaves somewhat differently than the Fe ion when alloyed with Pd, where the field at the Fe^{57} nucleus is lower at smaller concentrations of Fe than in pure Fe. The large value of H_{eff} is apparently connected with the large local moment at the impurity ferromagnetic Co atom. On the other hand, the increase of H_{eff} at the Co nucleus in the investigated alloy can be due to the change in the contribution of the spin density due to the conduction s-electrons, compared with metallic cobalt. The dependence of H_{eff} on the Co concentration is now under investigation.

SUB CODE: 20/ SUBM DATE: 25Feb66/ ORIG REF: 001/ OTH REF: 006

Card 2/2

ANISHCHENKO, V.P.; ARTEMENKO, A.N.; KAUKINA, N.P.

Use of feldspar concentrates for glassmaking. Stek. i ker. 19
no.3:40-41 Mr '62. (MIRA 15:3)
(Glass manufacture) (feldspar)

TORLINA, L.I.; ANISHCHENKO, V.P.; PUSHKAREV, V.D.; TORLIN, F.I.; BELOUSOV,
N.P.; BELOUSOV, Q.Ye.

Redesigning of the components of a glass furnace. Prom.energ.
17 no.7:6-7 J1 '62. (MIRA 15:7)
(Glass furnaces)

ZEMSKOV, P.I., kand.tekhn.nauk; KHAVINA, R.B., inzh.; DEGTAREVA, O.F., inzh.;
YAKUSHINA, Ye.N., inzh.; KHARCHENKO, Ye.N., inzh.; ANISCHENKO, V.V.,
inzh.

Capron pinions for motor-vehicle engines. Mashinostroenie
no.6:42-44 N-D '65. (MEA 18:12)

U 10525-69 INT (A)/EPR (U)/EPR (U)/EPR (U)/EPR (U)/EPR (U)/EPR (U)/EPR (U)/EPR (U)/EPR (U)/EPR (U)/EPR (U)
 ACCESSION NR: A74075975 Pa 5 12/84 8/0191/64/000/006/0064/0067

AUTHOR: Dedyukha, O. F.; Zaslav, P. I.; Yakubina, Ya. B.; Kharchenko, Ye. B.;
 Anisimchenko, V. V.

SUBJ: Antifriction properties of some plastics

EDITION: Plasticheskiye massy, no. 6, 1964, 54-67

TOPIC TAGS: Sliding resistance, friction coefficient, wear resistance, antifriction property, plastic, carbon-graphite composition, babbitts, babbitt lining, lining effect

ABSTRACT: The antifriction properties of carbon, carbon+3-5% graphite, babbitts, and babbitts were evaluated to determine their suitability for the manufacture of articles subject to wear friction. The effects of load, rate of slip, type of lubricant, and hardness of shaft were studied on bushings of these materials used with steel, cast iron shafts, and on bushings of bronze, babbitts and cast iron with steel shafts. Babbitt bushings had the lowest coefficients of friction of the plastics tested. Carbon had the best antifriction properties. On loading, the coefficient of friction increased at first, then decreased and

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ACQUISITION NO: AFW099755

revealed that at 20,000-25,000 revolutions the friction coefficient amounted to 60% of the original value. There was little wear on the shaft. Besides at 10-20 rev/min showed the coefficient of friction for carbon was least at 10-15 rev/min. The coefficient of friction decreased by about 1/2 on increase of the speed of rotation from 0.5 to 1/10. The harder the shaft the less the coefficient of friction and less of the carbon burning. Deformed with 1-2% of the original length, less than all the materials tested. Orig. article has figures and formulas.

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ACQUISITION NO: AFW099755

ACQUISITION NO: AFW099755

END 2/2

ANISHCHENKO, Yevgeniy Ivanovich, aspirant; SIUNOV, Nikolay Sergeyevich,
doktor tekhn.nauk, prof.

Reaction of the stator of a synchronous machine with split poles.
Izv.vys.ucheb.zav.; elektromekh. 7 no.1:24-33 '64.

1. Kafedra elektricheskikh mashin Ural'skogo politekhnicheskogo
instituta (for Anishchenko). 2. Zaveduyushchiy kafedroy elektricheskikh
mashin i rektor Ural'skogo politekhnicheskogo instituta (for Siunov).

ANISHCHENKO, Yevgeniy Ivanovich, assistant; KIRPICHNIKOV, Viktor Mikhaylovich, kand. tekhn. nauk, dotsent; SIUNOV, Nikolay Sergeyevich, doktor tekhn. nauk, prof.

Use of an electric integrator in calculating stray fields of the rotor of a synchronous machine. Izv. vys. ucheb. zav.; elektromekh. 7 no.7:837-847 '64.

(MIRA 18:5)

1. Kafedra elektricheskikh mashin Ural'skogo politekhnicheskogo instituta (for Anishchenko). 2. Zaveduyushchiy kafedroy vychislitel'noy tekhniki Ural'skogo politekhnicheskogo instituta (for Kirpichnikov). 3. Zaveduyushchiy kafedroy vychislitel'noy tekhniki Ural'skogo politekhnicheskogo instituta (for Siunov).

ANISHCHENKO, Ye.I., kand.tekhn.nauk

Prevention of the sticking of the rotor during the start of a
synchronous electric motor. Prom. energ. 20 no.1:8-11 Ja '65.
(MIRA 18:4)

ANISHCHENKO, YE., RUDCHENKO, V., TOKAREV, G.

Coal Mines and Mining

Sinking of mine shafts while cutting through a steep bed subject to coal and gas eruption. Ugol' 27 no. 4, 1952.

Monthly List of Russian Accessions. Library of Congress, August, 1952. Unclassified.

ANISHCHENKO, Ye.Ye.

First results of transferring Artemovsk Coal Combine mines
to a reduced work schedule and a new wage system. Ugol' 33
no.8:25-27 Ag '58. (MIRA 12:1)

1. Nachal'nik kombinata Artemugol'.
(Donets Basin--Coal mines and mining)
(Mine management)
(Wages)

ANISHCHENKO, Ye.Ye.; RUDCHENKO, V.P.; ZHUKOV, V.Ye.

Reorganization of mines in the central part of the Donets
Basin. Ugol' Ukr. 3 no.6:6-9 Je '59. (MIRA 12:11)
(Donets Basin--Coal mines and mining)

MEKRASOVSKIY, Ya.E., prof., doktor tekhn.nauk; ANISHCHENKO, Ye.Ye., inzh.
SAVOST'YANOV, A.V., inzh.

Analysing the basic factors affecting the work indices in mine
sections. Ugol' Ukr. 4 no.9:8-11 S '60. (MIRA 13:10)
(Stalino Province—Coal mines and mining)

NEKRASOVSKIY, Ya.E., prof., doktor tekhn.nauk; ANISHCHENKO, Ye.Ye., inzh.;
SAVOST'YANOV, A.V., kand.tekhn.nauk

Effect of basic mining engineering factors on the technical and
economic indices of mine section operations in the central Donets
Basin. Ugol' 36 no.3:31-35 Mr '61. (MIRA 14:5)
(Donets Basin—Coal mines and mining)

L 01292-67 EWT(1)
ACC NR: AT6010471

SOURCE CODE: UR/2694/64/000/138/0029/0038

AUTHOR: Anishchenko, Ye. I.

ORG: none

TITLE: Peculiarities in the design of the magnetic circuit of a split-pole synchronous machine 29

SOURCE: Sverdlovsk. Ural'skiy politekhnicheskiy institut, Trudy, no. 138, 1964.
Issledovaniye elektromagnitnykh i elektromekhanicheskikh protsessov mashin
peremennogo toka (Research on electromagnetic and electromechanical processes in
a. c. machines), 29-38

TOPIC TAGS: electric machine, electric generator, synchronous machine

ABSTRACT: Two adjacent like poles form one double magnetic pole in the split-pole synchronous machine. No-load magnetic field curves in the airgap are shown for 60, 70, 82.5, and 90% enclosures of the double pole. These curves serve as a basis for calculating the magnetic circuit. The curves are represented by Fourier series, and the harmonic content is determined. It is shown that a practically sinusoidal stator

Cord 1/2

L 01292-57

ACC NR: AT6010471

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voltage can be obtained with this design. Ampere-turns necessary for driving the flux through various portions of the magnetic circuit are calculated. Leakage flux between like poles is evaluated. A plot of field ampere-turns vs. percent enclosure of the pole, for the airgap, teeth, stator core, and rotor body is presented. It is found that the optimal percent enclosure of the pole lies between 0.82 and 0.85. Orig. art. has: 7 figures, 9 formulas, and 1 table.

SUB CODE: 09 / SUBM DATE: none / ORIG REF: 003 / OTH REF: 001

Card 2/2 LC

L 01291-67 EWT(1)

ACC NR: AT6010472

SOURCE CODE: UR/2694/64/000/138/0039/0049

AUTHOR: Stunov, N. S.; Anishchenko, Ye. I.

ORG: none

TITLE: Determination of parameters and starting characteristics of a split-pole synchronous motor *nm*

SOURCE: Sverdlovsk. Ural'skiy politekhnicheskiy institut, Trudy, no. 138, 1964. Issledovaniye elektromagnitnykh i elektromekhanicheskikh protsessov mashin peremennogo toka (Research on electromagnetic and electromechanical processes in a. c. machines), 39-49

TOPIC TAGS: electric motor, synchronous motor

ABSTRACT: Peculiarities in the calculation of parameters and starting characteristics of a split-pole (double-pole, see AT6010471) synchronous motor are considered. As an example, a motor with 72 stator slots, $2p = 6$ rotor poles, and a 2-layer 60° -phase-belt 8-slot-pitch stator winding is used; d- and q-axis parameters are determined. As the stator-winding mmf curve of this machine is closer to the sine wave

Card 1/2

Card 2/2 *LC*

REF(k)/REF(d)/REF(h)/REF(l)/REF(v)
ACC NR 00019330 (N)

SOURCE CODE: UR/0144/66/000/002/0160/0164

AUTHOR: Anisichchenko, Ye. I.; Kirpichnikov, V. M.; Siunov, N. S.

ORG: None

TITLE: Criteria for adhesion in synchronous motors

SOURCE: IVUZ. Elektromekhanika, no. 2, 1966, 160-164

TOPIC TAGS: ~~electric motor~~, electric motor, harmonic analysis, reliability engineering, MECHANICAL FAILURE, ENGINE STARTER SYSTEM

ABSTRACT: Adhesion in synchronous motors occurs where $L_{\min} \approx t_1$ ($\gamma_{\text{eff}} \approx 1$). In this case the tooth harmonics, which are the cause of adhesion, are largest. The larger γ the smaller the effect of the starting winding slots and the less the tendency of the motor to adhesion. Two conditions are recommended for eliminating adhesion,

$$t_2 > 0.8t_1, \quad (1)$$

$$A = \left| (n_c - 1) \left(1 - \frac{t_2}{t_1} \right) \right| > 0.75, \quad (2)$$

where t_1 and t_2 are the stator and rotor tooth divisions. The following should be

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UDC: 621.313.332.+621.3.044.

L 09216-67

ACC NR: AP6019230

true for reliable starting of synchronous motors: $\gamma_{\text{eff}} > 1.5$ or $\gamma_{\text{av}} > 1.8$. Orig.
art. has: 4 formulas, 2 figures and 1 table.

SUB CODE: 09/SUBM DATE: 19 Feb 64/ORIG REF: 004

Machine Design

Card 2/2

ANISHCHENKO, Yevgeniy Ivanovich, aspirant; KIRPUCHNIKOV, Viktor 'Mikhaylovich, aspirant; SIUNOV, Nikolay Sergeyevich, doktor tekhn.nauk, prof.

Use of computer devices in the harmonic analysis of flux and e.m.f. of a synchronous machine. Izv.vys.ucheb.zav.; elektro-mekh. 5 no.9:985-993 '62. (MIRA 16:1)

1. Kafedra elektricheskikh mashin Ural'skogo politekhnicheskogo instituta (for Anishchenko). 2. Kafedra elektrifikatsii promyshlennykh predpriyatiy Ural'skogo politekhnicheskogo instituta (for Kirpichnikov). 3. Zaveduyushchiy kafedroy elektricheskikh mashin, rektor Ural'skogo politekhnicheskogo instituta (for Siunov).
(Electric machinery, Synchronous) (Magnetic circuits)
(Electric network analyzers)

ANISHCHENKO, Ye.I.

Special features of the calculation of the magnetic circuit
of a synchronous machine with split poles. Trudy Ural. poli-
tekh. inst. no. 138:29-38 '64 (MIRA 19:1)

STUNOV, H.B.; ANISHCHENKO, Yo.I.

Determination of the start parameters of a synchronous motor
with split poles. Trudy Ural. politekh. inst. no. 138:39-49
'64 (MIRA 19:1)

ANISHCHENKO, YU. V.

USSR/Nuclear Physics - Cosmic Rays Feb 52

"Electron-Nuclear and Broad Atmospheric Showers of Cosmic Rays," Yu. V. Anishchenko, G.T. Zatsypin, I.L. Rozenfel'd, L.I. Sarycheva, Phys Inst Imeni Lebedev, Acad Sci USSR

"Zhur Eksper i Teoret Fiz" Vol XXII, No 2, pp 143-151

Studies electron-nuclear showers. Concludes that such showers occur not only in heavy (Pb), but also in light elements (C). High-energy shower particles produce secondary showers, a proof of nuclear cascade processes (cf G.T. Zatsypin, "Dok

207199

USSR/Nuclear Physics - Cosmic Rays Feb 52
(Contd)

At Nauk SSSR" Vol LXVII, 933, 1949). Density of beam of active nucleons is found proportional to density of electron beam. Indebted to Acad D.V. Skobel'tsyn, Prof N.A. Dobrotin, G.B. Zhidakov, M.I. Podgoretskiy. Received 10 May 51.

207199

ANISHCHENKO, Yu. V.

56-7-48/66

AUTHOR

ANISHCHENKO, Yu.V., RUKHADZE, A.A.

TITLE

Polarization on the Occasion of the Double Scattering of electrons.
(Polarizatsiya pri dvukratnom rasseyanii elektronov - Russian)

PERIODICAL

Zhurnal Eksperim. i Teoret. Fiziki, 1957, Vol 33, Nr 1, pp 279-280,
(U.S.S.R.)

ABSTRACT

The longitudinal polarization of the electrons of the β -decay manifests itself on the occasion of the twofold scattering of the β -electrons. The differential cross section of the double scattering of a longitudinally polarized beam of electrons is here explicitly written down. These formulae are then specialized for Born's approximation. The following facts were established: The effect produced by the azimuthal asymmetry in the case of the double scattering of the polarized beam of electrons is considerably greater than the effect produced by the azimuthal asymmetry of the scattering of a non-polarized beam. If the recoil of the nucleus is disregarded and in the case of the neutrino with two components the relation $\eta = v/c$ applies to the degree of longitudinal polarization of the β -electrons. Experiments carried out in connection with the double scattering of a polarized beam are rendered considerably more difficult by the relatively low activity of the β -active preparations. They are however, of considerable interest in connection with the verification of the above mentioned calculations and for the explanation of the phenomenon of β -decay. At present endeavors are being made to verify this phenomenon experimentally. In conclusion a possible

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ACCESSION NR: AP4041035

S/0120/64/000/003/0136/0138

AUTHOR: Anishchenko, Yu. V.; Ogurtsov, O. F.

TITLE: Compensating the variation of a multiplier-phototube gain due to supply-voltage variation

SOURCE: Priory* i tekhnika eksperimenta, no. 3, 1964, 136-138

TOPIC TAGS: multiplier phototube, photomultiplier, nuclear radiation

ABSTRACT: Feedback and special-dynode-characteristic methods used for photomultiplier-gain stabilization in nuclear radiation measurements are considered unwieldy. Two simpler methods for the stabilization of the counting-rate characteristic of a scintillation counter are suggested: (1) Automatic control of the amplifier-stage gain by means of a tube with an extra-long grid-anode (transfer) characteristic (Soviet series K tube); (2) Control of the threshold voltage by establishing an automatic dependence of it on the photomultiplier supply

Card 1/2

KOVALENKO, N.I.; ANISHCHENKO, Z.N.

Problem of the refractometer method of determining the dry residue in
natural brine. Uch.zap. Sar.un. Vyp.fiz. 56:139-145 '57. (MIRA 12:11)
(Saline waters)

OSHAROV, P.; PAGIN, V.; TESLYA, Ye., inzh.; CHERNOVA, Ye.; KOPTEV, A.;
LAZUTIN, P.; ANISHCHENKOV, T., instruktor; TOKAREV, S.; BERTSON,
S.; KRICHEVSKIY, A.

They have to far to go. Sov. profsoiuzy 18 no.5:40-41 Mr '62.

(MIRA 15:3)

1. Reydovaya brigada zhurnala "Sovetskiye profsoyuzy".
2. Krasnoyarskiy krayevoy komitet profsoyuza rabochikh stroitel'stva i promyshlennosti stroymaterialov (for Koptev). 3. Posadchik prokatnogo tsekha zavoda "Sibelektrostal'" (for Lazutin).
4. Krasnoyarskiy krayevoy komitet profsoyuza rabotnikov mestnoy promyshlennosti i kommunal'nogo khozyaystva (for Anishchenkov).
5. Zaveduyushchiy lektorskoy gruppoy Krasnoyarskogo krayevogo soveta profsoyuzov (for Tokarev). 6. Zaveduyushchiy otделom krayevoy gazety "Krasnoyarskiy rabochiy" (for Bertson). 7. Spetsial'nyy korrespondent zhurnala "Sovetskiye profsoyuzy" (for Krichevskiy).
(Krasnoyarsk--City planning)

BOGOSLOVSKIY, B.M. [deceased]; ANISHCHUK, Ye.M.

Investigating the relationship between the structure of acid disazo
dyes and their dyeing properties. Izv.vys.ucheb.zav.; tekhn.tekst.prom.
no.3:122-129 '60. (MIRA 13:7)

1. Moskovskiy tekstil'nyy institut.
(Dyes and dyeing--Wool)

ANISHCHEV, V.L.

Reconditioning worn-out piston studs of the MOP-60 manometers.
Izm. tekhn. no.1:34 Ja '65. (MIRA 18:4)